

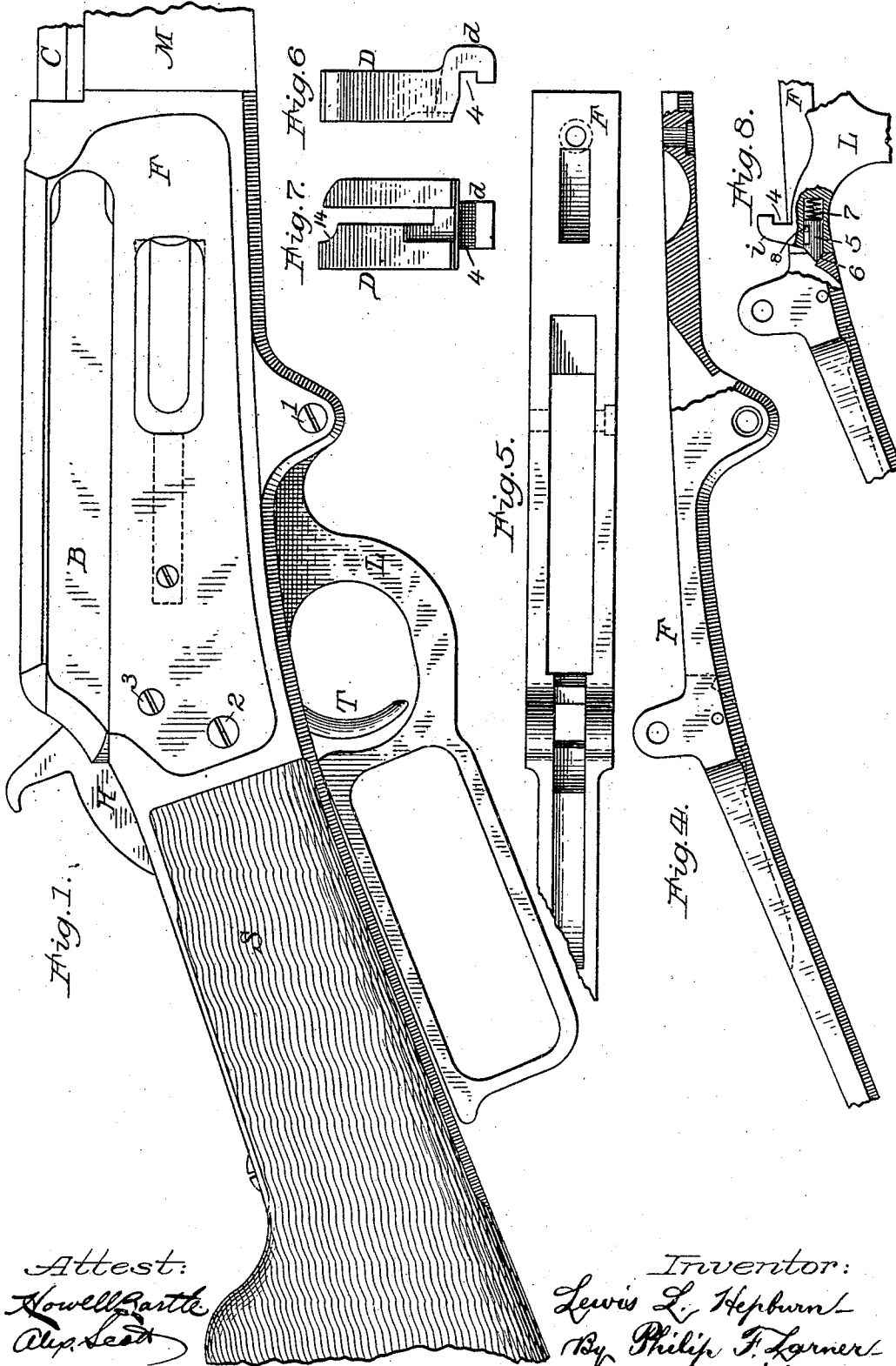
(No Model.)

2 Sheets—Sheet 1.

L. L. HEPBURN.  
BREECH LOADING GUN.

No. 502,489.

Patented Aug. 1, 1893.



Attest:  
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Atty. Secy

Inventor:  
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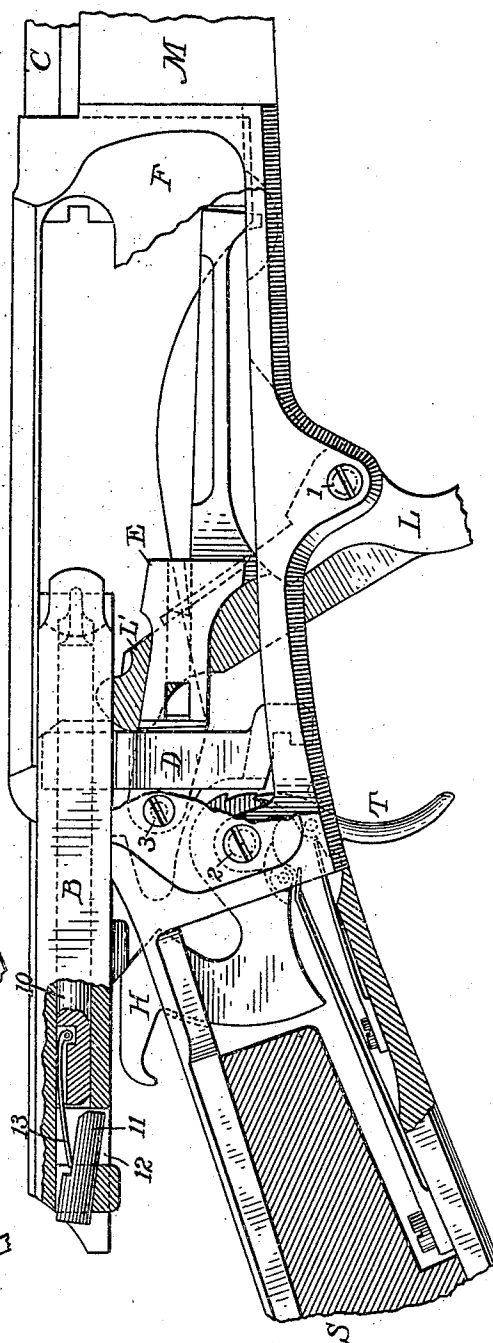
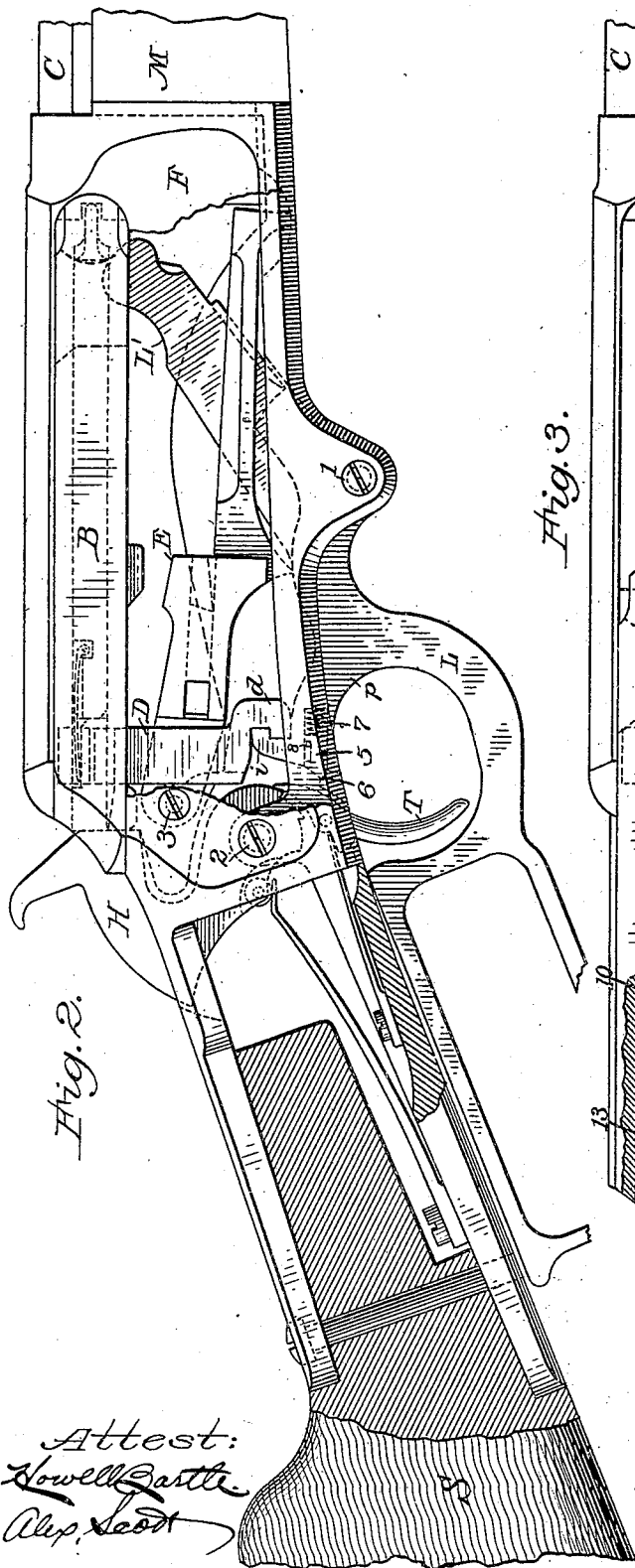
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2 Sheets—Sheet 2.

L. L. HEPBURN.  
BREECH LOADING GUN.

No. 502,489.

Patented Aug. 1, 1893.



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# UNITED STATES PATENT OFFICE.

LEWIS L. HEPBURN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE  
MARLIN FIRE ARMS COMPANY, OF SAME PLACE.

## BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 502,489, dated August 1, 1893.

Application filed January 3, 1893. Serial No. 457,115. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS L. HEPBURN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and  
5 useful Improvement in Magazine-Firearms, of which the following is a specification.

My improvement relates to magazine and other fire-arms and it consists in certain improvements upon the mechanism shown in  
10 the Letters Patent Nos. 371,455 and 400,679, granted to me October 11, 1887, and April 2, 1889, substantially as hereinafter described and claimed.

In the drawings:—Figure 1 is a side elevation of a magazine fire arm provided with my  
15 improvements. Fig. 2 is a similar elevation of the same with a portion of the side frame and stock broken away to show the construction of the internal parts. Fig. 3 is a similar view  
20 with the breech block thrown back and partially sectioned to show the construction of the firing pin. Fig. 4 is a side view of the bottom part of the metallic frame detached from the arm. Fig. 5 is a top view of the  
25 same in plan. Fig. 6 is a side view of my improved locking bolt for the breech block. Fig. 7 is an end view of the same looking in the direction of the barrel. Fig. 8 is a detail view of the lever locking bolt and frame.

30 C is the barrel of the gun.

M is the magazine.

F is the metallic frame attached to the barrel and magazine in the usual manner. S is the stock.

35 B is the breech bolt, which slides longitudinally out and in on its guideways in the frame.

L is the breech bolt lever, pivoted in the frame at 1, and having its upper end, L', working in a slot in the breech bolt in the usual  
40 manner.

E is the carrier, which lifts the cartridge from the magazine to the barrel and is operated by the lever as described in my former patent.

45 The screw pivot, 2, forms an axis for the hammer to turn on and also secures the lower part of the frame, shown in Fig. 4, to the other parts. The screw pivot, 3, forms an axis for the carrier, E, to swing on at its rear end.

50 D is the locking bolt, which secures the breech bolt in place. It locks the breech bolt

by having its upper end enter a slot 12 in the breech bolt as in my said former patents, that is to say, the locking bolt D slides longitudinally in ways formed in the frame of the  
55 arm, and is brought into its locking position by the lever L as hereinafter described, when the breech bolt is moved up against the breech, and the locking bolt is withdrawn from the notch by the lever before the breech  
60 bolt is moved back, but its lower end is modified to allow it to be shortened so that it shall not project below the frame of the arm when it is drawn down, as heretofore. The member, p, of the lever, L, has its notch or  
65 projection, i, which engages with a recess, 4, in the bolt D, reversed; that is to say, the recess, 4, is on the rear side of a projection, d, of the locking bolt and the projection, i, on the lever projects forward and engages with  
70 a recess on that side to draw down the locking bolt. This construction enables me to shorten the locking bolt so that it is entirely within the frame of the arm, and is much neater and safer in construction and operation.  
75 It also enables me to insert in the member, p, of the lever, L, a frictional locking bolt, 5, which engages with a notch, 6, in the frame and can be sprung out of the notch by a strong pull on the lever L, but otherwise  
80 serves to hold the lever in a locked position, as shown in Figs. 1 and 2, and prevents its being accidentally thrown forward and opening the breech. This is manifestly impossible to arrange when the locking bolt D moves  
85 up and down on the rear side of the member, p, of the lever as in my said former patents. This bolt, 5, works in a socket in the lever, and has a spiral spring, 7, behind it, which thrusts it outward. It is held in place in the  
90 lever by the pin, 8, which passes through the socket at a point where the bolt is flattened on one side and prevents the bolt from being thrown out of the socket by the spring when the lever is swung downward as shown in  
95 Fig. 3. The reason why this new arrangement of the recess in the locking bolt, D, and the projection, i, on the lever, L, can be used with a shorter locking bolt than when constructed as shown in my said former patents  
100 is, that in the former construction the projection did not begin to swing away from the

locking bolt and disengage itself from the recess in the latter until it swung below a line drawn at a right angle to the path of motion of the locking bolt through the center of the screw axis, 1, and therefore the locking bolt had to be made long enough to cause the projection to properly disengage itself when the locking bolt was drawn down the proper distance, and this necessity obliged the construction of the locking bolt so as to project below the frame of the gun. But when the projection enters the recess, 4, in the locking bolt from the opposite side of the latter, viz: the rear side, the projection begins to swing away from the line of movement of the locking bolt above the line drawn at right angles to the latter as before described, and hence the projection and the recess in the locking bolt may all be made so far up within the frame that the bolt will remain within the breech when it is drawn down to unlock the breech bolt.

In order to insure greater perfection in the safety device for locking the firing pin, 10, as soon as the breech bolt begins to be opened, I have devised the following construction:— I make the firing pin in two parts, 10, 11, placed end to end in the breech bolt. The part, 10, is constructed at its forward end, where the lever end, L', passes by it, substantially as in my said former patents, that is to say, it has a portion of its side cut away to allow the end of the lever to pass by and lock it, at the instant that the latter begins to withdraw the breech bolt and it extends backward to the notch or recess, 12, in the breech bolt with which the upper end of the locking bolt, D, engages to lock it. The forward end of the part, 11, of the firing pin is made to fit loosely in the longitudinal socket through the breech bolt, in which it slides, so as to drop down behind the shoulder formed by the forward side of the slot, 12, when the locking bolt D is withdrawn and in this position, as shown in Fig. 3, a blow upon the part 11 of the firing pin will not drive the part 10 forward to explode the cartridge, because of this shoulder.

In order to insure the engagement of the forward end of the part, 11, with this shoulder in all positions of the arm, as soon as the locking bolt D begins to be withdrawn, I arrange the flat spring, 13, in the bore of the breech bolt above the part, 11, so as to press down on its forward end and cause it to engage with the shoulder of the recess, 12, as soon as the locking bolt D is withdrawn. The upper end of the locking bolt D is formed with a semi-cylindrical recess, 14, (Fig. 7) to allow the part 11 of the firing pin to slide therein and guide it accurately against the part 10 when the locking bolt is in place and the breech is closed. This insures the full force of the blow of the hammer being delivered against the part, 10, of the firing pin to explode the cartridge when the parts are in that position. It is evident that the spring,

13, might be dispensed with if the gun were held in the upright position shown in Figs. 1, 2, 3, and the safety apparatus still do its work, but I prefer to use the spring, 13, as shown.

The difference in operation between this safety device for the firing pin and those shown in my said former patents is that this one begins to operate with the first movement of the lever L, which draws down the locking bolt D from underneath the part, 11, of the firing pin, whereas with the former apparatus the lever had to move through some little distance before the locking action of the firing pin took effect, and this construction therefore begins to lock the firing pin against a blow of the hammer or other external means sooner than the former constructions, when the breech mechanism is operated.

Again, in assembling the parts of the breech mechanism after taking it apart to clean it, if the locking bolt D were accidentally left out, as sometimes happens with those not expert in the use of the gun, the gun could be operated and fired with the remaining parts, especially with the safety mechanism as constructed and shown in my Patent No. 371,455, of October 11, 1887, while with the present construction the locking bolt D must be inserted in place before the gun can be discharged by striking the firing pin.

What I claim as new and of my invention is—

1. The combination of the sliding breech bolt, B, the locking bolt, D, arranged to move substantially at right angles to the breech bolt and enter a recess to lock the same, provided with a recess, 4, on its rear side, and the lever, L, provided with the projection, 2, arranged to engage with said recess draw down the locking bolt D and disengage itself therefrom while moving the breech bolt backward, substantially as described.

2. The combination of the sliding breech bolt, B, the locking bolt, D, arranged to move substantially at right angles to the breech bolt and enter a recess to lock the same, provided with a recess, 4, on its rear side, the lever L provided with the projection, 2, arranged to draw down the locking bolt D and disengage itself therefrom while moving the breech bolt backward, and the frictional locking bolt, 5, arranged in the lever L below the projection, 2, in position to engage with the notch, 6, in the frame substantially as described.

3. The combination of the sliding breech bolt, B, provided with a longitudinal passage through or in it for the firing pin, and with a recess or notch, 12, for the locking bolt, the locking bolt, D, arranged to enter said recess and lock the breech bolt, the part, 10, of the firing pin extending backward to said recess, 12, and the part of the firing pin, 11, arranged to drop downward in said recess and bear against the forward side of the same when the locking bolt is withdrawn, substantially as described.

4. The combination of the sliding breech bolt, B, provided with a longitudinal passage through or in it for the firing pin, and with a recess or notch, 12, for the locking bolt, the  
5 locking bolt, D, arranged to enter said recess and lock the breech bolt, the part 10 of the firing pin extending backward to said recess 12, the part, 11, of the firing pin arranged to drop downward in said recess and bear

against the forward side of the same when the locking bolt is withdrawn, and the spring, 13, arranged to press the part, 11, of the firing pin behind the shoulder of the recess substantially as described.

L. L. HEPBURN.

Witnesses:

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M. E. WARD.